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HARLEM RIVER SHIP CANAL

LETTER FROM

SIMON STEVENS

TO THE

COMMISSIONERS OF THE SINKING FUND

OF THE CITY OF NEW YORK.

DECEMBER 25, 1891.

Accompanied by Colton's Map (30" x 40") of that part of the City of New York, northerly of 93d Street to Kingsbridge, upon which is shown the Bulkhead and Pierhead lines of both shores of the Harlem River and Spuyten Duyvil Creek, from Ward's Island to the Hudson River, as recommended by the New York Harbor Line Board, and approved by the Secretary of War, Oct. 18, 1890, for Canal purposes. This Map also illustrates the project of building a COVERED WATER-WAY, 60 feet wide, on the westerly side of the Harlem River, from the easterly side of **Third Avenue** to **165th Street**, and filling in the river between those points, so that the Avenues and Streets of Harlem may be extended into

MORRISANIA.

Handed to the Mayor, January 20, 1892, for presentation to the Commissioners of the Sinking Fund at their next meeting.

Presented to the Commissioners, March 2, 1892, and, on motion of the Recorder, was laid on the table.

To which is added an Appendix, and a Miniature Map of New York City and Vicinity

MARCH 8, 1892.



MINIATURE MAP OF THE
CITY OF NEW YORK,
SHOWING PROJECT OF
A COVERED WATER-WAY
60 feet wide, on the Westerly Side of
the Harlem River, between Third and
Eighth Avenues, and filling in between
those points, so that the avenues and
streets of Harlem may be extended
into Morrisania, as specified in a com-
munication to the Commissioners of
the Sinking Fund, according to Plans
suggested by
SIMON STEVENS and
G. THADDEUS STEVENS,
New York, Dec. 25, 1891. 61 BROADWAY
Proposed Filling in, R

OFFICES OF
SIMON STEVENS,
61 BROADWAY,
NEW YORK.

SIMON STEVENS.
G. THADDEUS STEVENS.

61 BROADWAY,
NEW YORK, December 25, 1891.

TO THE HONORABLE THE COMMISSIONERS OF THE SINKING FUND :

GENTLEMEN—By a communication from the Department of Docks under date of July 31, 1891, you were apprised of the passage of a Resolution of the Board of Docks, approving certain plans that had been prepared by its Engineer-in-Chief, having for its object a proposed improvement of the westerly side of the Harlem River for dock purposes, from the central line of East One Hundred and Thirty-eighth street to the westerly side of Seventh avenue at One Hundred and Fifty-fifth street, and asking your approval of such plans.

The communication was referred by you to the Honorable Comptroller for examination and report. The Comptroller in turn referred it to Mr. McLean, the Engineer of the Finance Department, who made a careful study and a report upon the proposed improvement, which the Comptroller submitted to the Commissioners of the Sinking Fund September 8, 1891, enclosing therewith the communication from the Department of Docks, as follows : [See Minutes of Sinking Fund of Sept. 8, 1891.]

CITY OF NEW YORK, DEPARTMENT OF DOCKS,
Pier "A" North River, Battery Place.
NEW YORK, July 31, 1891.

HON. HUGH J. GRANT, MAYOR, AND CHAIRMAN OF THE COMMISSIONERS OF THE SINKING FUND :

Sir—At a meeting of the Board governing this Department held 30th instant, the following resolution was adopted :

"Resolved, That the plans prepared and submitted by the Engineer-in-Chief of this Department for the improvement of the water front along the westerly side of the Harlem River from the centre line of East One Hundred and Thirty-eighth street to the westerly side of Seventh avenue be and hereby is approved by the Department, and it be and hereby is determined as the plan for the improvement of the water front thereat ; and be it further

"Resolved, That the Commissioners of the Sinking Fund be and they hereby are requested to approve of the plan for the improvement of the water front thereat."

Yours respectfully,
EDWIN A. POST,
President.

Which was referred to the Comptroller.

FINANCE DEPARTMENT, COMPTROLLER'S OFFICE,
September 8, 1891.

TO THE COMMISSIONERS OF THE SINKING FUND :

GENTLEMEN—I present herewith a communication from the Department of Docks, accompanied by a plan of the improvement approved and determined for the water front along the westerly side of the Harlem River, from the centre line of East One Hundred and Thirty-eighth street to the westerly line of Seventh avenue, and requesting the approval of this Board to the plan for the improvement of the water front at that location.

The plan was by me referred to the Engineer of the Finance Department, who has made a careful study of the proposed improvement, and whose report in detail is also submitted. While not wishing to interrupt the advancement of the necessary improvement of the Harlem River, I am of opinion that, in a matter of this importance, involving, as it must, an expenditure of several millions of dollars, great diversity of opinion; and, where radical changes are made in the direction of the streets as now laid down on the map of the City, steps should be taken to secure a full and free expression of the views of those most interested in this great public work; and, that before taking any action upon the plans as submitted by the Department of Docks, a public hearing should be held, where all parties in interest could be heard, and whose views could be subsequently considered.

Respectfully,

THEO. W. MYERS,
Comptroller.

REPORT OF MR. McLEAN.

COMPTROLLER'S OFFICE,
September 8, 1891.

HON. THEODORE W. MYERS, Comptroller :

Sir—At the meeting of the Board controlling the Department of Docks, held on the 30th July, 1891, the following resolutions were adopted :

“ Resolved, That the plan prepared and submitted by the Engineer-in-Chief of this Department for the improvement of the water front along the westerly side of the Harlem River, from the centre line of One Hundred and Thirty-eighth street to the westerly side of Seventh avenue, be and hereby is approved by this Department, and it be and hereby is determined as the plan for the improvement of the water front thereat; and be it further

“ Resolved, That the Commissioners of the Sinking Fund be, and they are hereby, requested to approve of the plan for the improvement of the water front thereat.”

The total length of this water front, between the points named, is 5,309.96 feet.

The land under water, to the bulkhead line of 1857, has been granted from the centre line of the block between One Hundred and Fortieth and One Hundred and Forty-first streets to the northerly limit of this proposed improvement; south of this centre line to the southerly limit of the improvement it has not been granted.

The plan of the City, at the time these grants were made, extends the streets and avenues to an exterior street, seventy feet in width, along the whole of the water front between the points under consideration.

The grants require, in one of the covenants, that the grantees shall, at their own proper costs and charges, build, erect, make and finish good and sufficient bulkheads, wharves, streets or avenues, roads or bridges, which shall form so much and such parts of street or streets, avenue or avenues, road or roads, bridge or bridges that may now or hereafter be designated or laid out through said premises, according to law, as fall within the limits of the premises, and will fill in the same with good and sufficient earth and regulate and pave the same and lay the sidewalks thereof, etc.

The proposed plan appears to contemplate a very large trade along this line, to provide for which it breaks up the bulkhead line by fourteen slips, from 100 feet to 226 feet in width, and from 200 feet to 600 feet in depth. Instead of a bulkhead of 5,304 feet it provides an actual business bulkhead of 16,404 feet.

The plan also includes a street, necessarily crooked, at the back of the slips, of 150 feet in width.

The business that may be expected on this line is, in a measure, speculative. The Harlem River improvement, now well under way, when completed, will doubtless open a very large commerce through Harlem River, but there is no reason to expect that the business here will be particularly affected, except by the increased facility of access.

The width of the river between bulkheads has been fixed at 400 feet, and, it appears to me, that for many years this width will be sufficient, both for the passing and the landing traffic.

The plan of the Department seems to provide for all the possibilities of the future, whereas, I think, it should only deal with the probabilities. If hereafter more bulkhead room should be required it could be easily obtained, but it does not look to me like true economy to lay down a system now which might never be wanted.

For all the demands of trade that we can see now, it appears to me that the straight bulkhead would be sufficient, or, at furthest, one only broken up by three or four slips.

I think the exterior street should be 80 or 100 feet wide, and run along the bulkhead and around the slips so as to give free access to the bulkhead everywhere. The width of the marginal street given on the plan, 150 feet, is greater than is necessary.

The adoption of the plan proposed by the Department does not involve any present expenditure by the City, but in the future questions of great moment will arise, in which the value of the land to be taken for slips and the building of the bulkheads will be prominent and expensive items. The great amount of dredging necessary to keep these proposed slips in condition will also be a constant item of expense.

The enclosed diagram, drawn roughly to scale, shows the positions of the proposed slips with their widths and depths.

There are fourteen (14) of them.

Their total area is 884,000 square feet, equal to about 354 city lots.

The building of them will require 11,000 lineal feet of crib or bulkhead work, in addition to the regular bulkhead of 5,304 feet, and an immense amount of dredging inside the regular bulkhead.

Respectfully,

EUG. E. McLEAN,

Engineer.

“Which were referred to a Committee consisting of the Comptroller and the City Chamberlain, with directions to confer with the Commissioners of Docks, and make arrangements for a joint meeting, at which persons interested may be heard in regard to the proposed improvement.”

The action of the Board of Docks above referred to is truly characterized by the Comptroller and by Mr. McLean, the distinguished Engineer of the Finance Department.

The plan proposed by the Dock Department is inimical to the true interests of the City of New York, the commercial as well as the financial metropolis of this hemisphere, and destined ere long to become that of the whole world.

The neglect to improve the water front on the North and East Rivers below Forty-second street, for the Harlem River, fully explains why foreign commerce is driven from New York to Hoboken, Jersey City, Brooklyn and Gowanus Bay.

While the scheme of canalizing the Harlem River and Spuyten Duyvil Creek has been drawing its slow length along, the march of improvement on the upper end of Manhattan Island has been so stupendous that there has developed a great necessity for practically closing to navigation that part of the Harlem River between Third and Eighth avenues, by filling it in between these points, leaving only a covered water way, 60 feet wide, to be built on the westerly side of the river at a height of not less than 7 feet above mean high water of spring tides, and extending the avenues and streets of Harlem into Morrisania—consequently, I present herewith a map showing the advantages of such a project. On this map I have caused to be drawn profiles of the Third and Fourth Avenue Bridges and the McComb's Dam Bridge and their approaches as now located and built, and on what grade it is proposed to rebuild them at an increased elevation. The map has been compiled from the published War Department map of the pierhead and bulkhead lines on both shores of the Harlem River and Spuyten Duyvil Creek as recommended by the New York Harbor Line Board, and approved by the Secretary of War, October 18, 1890. I have also caused to be indicated upon it the profiles and sections taken along the centre lines of Third, Fourth, Fifth, Sixth, Seventh and Eighth avenues, showing to what extent filling would be required if these avenues were to be extended across the Harlem River into Morrisania.

I have bestowed much attention upon the whole subject matter, and herein present a condensed history of the canal enterprise as reported to the Chief of Engineers, U. S. A., by his subordinates in charge, to which I have added some suggestions of my own as to what would hereinafter be done in the light of new developments.

The project for making a navigable water connection between the East

River and the Hudson River by the way of the Harlem River and the Spuyten Duyvil Creek was formulated upon the facts determined by the survey made by the U. S. Engineers along this route in 1874, in compliance with the River and Harbor Act of June 23, 1874, the report upon which may be found at page 224, Annual Report of the Chief of Engineers for 1875, Part II.

This report contains an interesting historical review of the navigation of the Harlem River from the Revolution to the present time.

A full history of this improvement as now adopted with the legal proceedings for the acquirement of the land needed for it, and copies of the laws passed by the Legislature of the State of New York relative thereto, is given in the annual report of the local engineer in charge to the Chief of Engineers for 1887. (See Annual Report of the Chief of Engineers for 1887, Part I., pages 665 to 689.)

The streams embraced in the improvement are the Harlem River and the Spuyten Duyvil Creek, the former emptying into the East River near Hell Gate, and the latter into the Hudson River about 13 miles north of the Battery, and together separating Manhattan Island from the mainland.

There has always been an exchange of waters between these two streams at Kingsbridge, though a long ledge of rocks awash at mean low water and an extremely narrow channel at that point have heretofore prevented the exchange being a free one.

High Bridge is practically at the head of navigation in the Harlem River, but there is a fair channel of about 10 feet depth at mean low water as far as Morris Dock, 6 miles from the mouth of the river, and a crooked one of 7 feet depth to Fordham Landing, 1 mile further; but there is no navigation of this entire section except by row-boats and a few boats loaded with building material for the roadway of streets which are being opened in the "annexed district." Kingsbridge, $1\frac{3}{4}$ miles from the Hudson River, is the head of navigation in the Spuyten Duyvil Creek, but only at high water, for vessels drawing 8 feet.

The range of the tides in Harlem River varies from 5.5 feet at Third Avenue Bridge to 6 feet at the mouth of Dyckman Creek, and in the Spuyten Duyvil is 3.8 feet.

As the difference in the height and times of tides between the East and Hudson Rivers, after the connection is made between the Harlem and the Hudson Rivers, will produce the currents upon which reliance is placed to keep the channel open, it is desirable that the cross-section of the channel be kept as uniform as possible in order to avoid the unnecessary resistances to the flow of the water which would be caused by any contraction of the waterway.

The contraction of the proposed cut through Dyckman Meadows will

be more than counterbalanced by the natural channel through Spuyten Duyvil by the way of Kingsbridge, which is left open; and the contraction caused by the piers and embankments of the High Bridge, which carries the Croton Aqueduct across the Harlem River, should be contracted by deepening the channels between piers and abutments. Observations of the tides affecting these waters show that there is not a free exchange of tides between Harlem River and Spuyten Duyvil Creek, but that there is practically a divide somewhere near Fordham Bridge between the tides flowing from the East River into the Harlem River, and from the Hudson River into Spuyten Duyvil Creek. Comparing the tides of the Harlem River at Fordham Bridge with those of the Hudson River at the mouth of Spuyten Duyvil Creek, it is found.

(1) That the level of mean high water in the Hudson is nearly one foot (.961 foot) lower than it is in the Harlem.

(2) That the mean rise and fall of the tide in the Hudson is 2.12 feet less than it is in the Harlem.

(3) That the mean duration of the rise of tides in the Hudson is 36 minutes shorter, and the mean duration of the fall 26 minutes longer, than in the Harlem.

(4) The mean level of the Hudson at the mouth of Spuyten Duyvil Creek is .265 of a foot lower than at Fordham Bridge.

(5) High water occurs 1 hour and 34 minutes earlier in the Hudson than in the Harlem.

From these facts it follows that while there will, at different times, be a flow toward either river, the preponderance of flow will be toward the Hudson, and the scour will go that way; so that, if a cut for a free passage of the tides be made, the opening into the Hudson will become the mouth of the cut.

The project for the improvement was adopted in 1879. The proposed lines of improvement, as laid down by the engineer in charge in his annual report for 1882, are as follows:

(1) Below the Harlem or Third Avenue Bridge the outer pier and bulkhead lines as laid down by the Park Department are adopted.

(2) Above the Third Avenue Bridge to the entrance of Dyckman Creek into the Harlem River the exterior pier and bulkhead lines are laid down 400 feet apart.

(3) The line following Dyckman Creek through Dyckman Meadows will pass for a part of the way through solid rock, and it is here that

the principal cost of the undertaking must be encountered. This part is to be made 350 feet wide. It would have been preferable to establish it at 400 feet, but the additional amount of rock excavation was the obstacle.

(4) The remainder of the line to the Hudson River will follow as nearly as possible the course of the Spuyten Duyvil, and the width will be 400 feet.

(5) The channel depth in the Harlem River and Spuyten Duyvil Creek will be 15 feet at mean low water, and in the channel along Dyckman Creek 18 feet mean low water.

The estimated cost of making the connection by a cut through Dyckman Meadows, as given by General Newton in his report for 1882, is \$2,100,000.

This estimate does not provide for the improvement of the channel of the Harlem River between this proposed cut and the mouth of the Harlem River.

The estimated cost of improving this part of the river, as given in General Newton's report for 1875, was about \$600,000. Total for the improvement of the Harlem River between the Hudson River and East Part River, \$2,700,000.

The project was revised in 1886 by narrowing the channel immediately north of High Bridge to 375 feet, where it skirts the Ogden estate on the east bank. This change of width was approved by the Secretary of War, October 7, 1886 (see Annual Report of the Chief of Engineers for 1887, I., page 671).

The estimated cost of opening the channel from the Harlem River to the East River by the way of the Harlem or Bronx Kills, making it 300 feet wide and 15 feet deep at low water, was about \$2,200,000. This survey was ordered by Act of Congress, approved March 3, 1881, and the report upon it is to be found in the Annual Report of the Chief of Engineers for 1882, Part I., page 656.

After the legal difficulties for acquiring the right of way along the line of the proposed improvement of the Harlem River were removed in May, 1887, the appropriations of 1878 and 1879, aggregating \$400,000, became available, and a project for their expenditure was made very soon thereafter.

Work was begun under the first contract for earth and rock excavation along Dyckman Creek, in January, 1888, and has continued uninterruptedly since that date.

Contracts have also been made covering the appropriation of \$70,000,

Act of August 11, 1888, and that of \$250,000, Act of September 19, 1890.

These several contracts provide for the excavation of all the material contained between the dams; the removal of the dams; the revetment of both banks for short distances east and west of both dams; and for dredging a channel from the east dam through the Harlem River to Fordham Dock, and from the west dam to Spuyten Duyvil Creek. It is expected that when these contracts are completed there will be a narrow channel between the Hudson and the East Rivers navigable at mean low water by vessels drawing eight feet.

In the report of the Chief of United States Engineers, of September 23, 1891, to the Secretary of War, it is stated that this improvement cannot be well or economically conducted except under large appropriations. The amount that can be profitably expended during the fiscal year ending June 30, 1893, is \$500,000.

Amounts appropriated by Acts of Congress approved :

June 23, 1874.....	\$11,000
March 3, 1875.....	10,000
June 18, 1878.....	300,000
March 3, 1879.....	100,000
Aug. 11, 1888.....	70,000
Sept. 19, 1890.....	250,000
	<hr/>
	\$741,000
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November 1, 1891 :

Amount on hand.....	\$245,220 10
Covered by contracts and liabilities outstanding.....	227,968 04
	<hr/>
Balance available.....	\$17,252 06
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It will be observed that the entire appropriations, except \$17,252.06, have been expended in making only a partial opening from Spuyten Duyvil Creek through Dyckman's Meadow. To complete that portion of the proposed work from the Hudson River to Fordham Landing according to the plans adopted, the United States Engineers estimate that it will require an additional appropriation by Congress of fully \$1,300,000, and \$600,000 more to dredge the Harlem River.

In a very few months the Kingsbridge dam will be removed, after which canal boats drawing not exceeding eight feet of water can come up from the Hudson River into the Harlem River. Without the additional ex-

penditure, however, of some \$1,300,000, no greater facilities than those that will be available by next May can be had in the coming four or five years; and, even should they then be completed, it would take a couple of years more to dredge the Harlem River.

This canal scheme to keep New York an island has been dangling in the air for the past seventeen years, and there is not the slightest probability that in any event it can be completed in the coming six years; but, if completed, it would never be anything more than a nuisance to be cursed by nineteen-twentieths of the people who reside in or who visit New York from above the Harlem River.

BRIDGES ACROSS AND TUNNELS UNDER THE HARLEM RIVER.

The State of New York, anticipating the completion of the improvement, and desiring to co-operate with the General Government in maintaining the navigation of the Harlem River unimpaired after improvement, passed an act in 1879, which provides :

SEC. 10. The said consent is given and the said jurisdiction ceded upon the express reservation to the State of New York of concurrent jurisdiction with the United States in and over the territory covered by said improvement, so far as that all civil and criminal process which may issue under the laws or authority of the State of New York may be executed thereon in the same way and manner as if such consent had not been given or jurisdiction ceded, except so far as such process may affect the real or personal property of the United States; provided, however, that the direction of the bridges hereafter to be constructed over said river or creek shall be at right angles to the courses of the improved channel; that the height of the bridges in the clear, at the draws, shall be not less than twenty-four feet above the high water of spring tides, and that the number and size of the bridge piers within the improved channel shall first be approved by the engineer of the United States in charge. And provided, further, that no tunnel shall be constructed under said river or creek which will not permit the excavation of a channel above it of at least twenty feet in depth at mean low water. There shall be constructed in every bridge, except in suspension bridges, hereafter built over said river or creek, two draws contiguous to each other, and the length on the bridge occupied by the draw spans and the centre pier separating them shall be at least two hundred and forty feet.

The site of the present Kingsbridge Road where it crosses Dyckman's Creek, between the dams, has been designedly left undisturbed till the last moment in order to give the City of New York time to prepare plans for the new bridge which will be required to be built at Broadway Crossing, to comply with the requirements of the State Act of 1879 for new bridges. This matter was brought before the Commissioner of Public Works, New York City, by the Chief of Engineers, U. S. A., in a letter

dated March 22, 1889, but as far as I can learn no final action has as yet resulted therefrom.

By Act of the Legislature of April 29, 1890, which became a law without the approval of the Governor, the Department of Public Parks was authorized to reconstruct McComb's Dam Bridge at Seventh avenue and One Hundred and Fifty-fifth street. The act provides that the expense of construction and the cost of private property that will have to be acquired for its approaches shall in no event exceed \$1,250,000. That the bridge shall be constructed in conformity with the general provisions of the Act of 1882, with the difference that it shall have the height of "not less than 36 feet above the high water of the spring tides," as provided in the Act of 1882. The provision for the height of the lower chord having been considered favorable for navigation, the consent of the Secretary of War to the construction of the bridge under the act was given June 23, 1890, but the land for the approaches has not yet been acquired by the Department of Parks; consequently, the building of the McComb's Dam Bridge is still in abeyance.

The bridges which have been built across the Harlem River since the passage of the Act of 1879 are those at Second avenue, at Madison avenue, and the New York and Northern Railroad Bridge at Eighth avenue.

During the past year the subject of raising the low bridges at Fourth and Third avenues has given rise to extended discussion at home and abroad among those in any way interested in the Harlem River or affected by its improvement, and an effort has been made to have those bridges reconstructed according to the State law of 1879 for new bridges.

The New York and Northern Railway Company and others interested in the navigation of the river, having heard that the Park Commissioners of New York City had under consideration the closing of the draws of all the bridges during certain stated hours every day, morning and evening, when the land travel over the bridges was greatest, united in a memorial addressed to the Secretary of War, dated February 1, 1890, in which it was declared that the low bridges at Fourth and Third avenues were obstructions to the navigation of the river within the meaning and intent of Sections 9 and 10 of the River and Harbor Act of August 11, 1888, and demanded that they be rebuilt.

Under instructions of the Secretary of War three public hearings were given in May to the parties interested, but as they could not reconcile their differences, a Board of Engineers was convened May 7, 1890, to consider the whole subject, and to submit recommendations for adjusting the matters complained of.

The board, after several adjourned meetings, beginning May 26, 1890, submitted its report on June 19, 1890.

The following table shows the location and characteristics of the several bridges across the Harlem River :

Name and location of bridge.	Width in clear in each draw.	Height of bottom chords above mean high water.	Remarks.
Second Avenue.....	103.7	28.5	Double draw, railroad bridge, iron.
Third Avenue.....	82.0	13.8	Double draw, road bridge, iron.
Fourth Avenue.....	(65.0) (68.0)	7.2	Double draw, railroad bridge, iron.
Madison Avenue.....	132.0	26.0	Double draw, road bridge, iron.
McComb's Dam.....	80.0	36.7	Double draw, road bridge, wood and iron.
New York & Northern R. R. High Bridge (Old Aqueduct).	228.0	28.0	Double draw, railroad bridge, iron.
Washington Bridge at 181st Street (single span).....			No draw; width in clear between piers, 77.7 feet; intrados of arch 100 feet above mean high water.
Footbridge, Fordham.....	32.0	3.9	No draw; iron arch; clear span 500 feet; crown of arch 136.7 feet above mean high water.
Farmers' Bridge.....		3.1	Single draw; wooden trestle; soon to be removed.
Kings Bridge.....		4.8	No draw; two spans, 18 and 25 feet wide.
Hudson River Railroad Bridge mouth of Spuyten Duyvil Creek.....	26.2	1.4	No draw; two spans, 22 and 23 feet wide.
			Single draw; wooden trestle; to be provided soon with a draw opening 50 feet wide and a steam motor for operating drawbridge.

The Board at the same time submitted to the Chief of Engineers its report in relation to the bridges across the Harlem River at Third and Fourth avenues, in which it was "recommended that the bridges, having " been found to be obstructions to the free navigation of a navigable water- " way of the United States, by reason of insufficient height and insufficient " width of spans, in the sense in which the words are used in Section 9 " and Section 10 of the River and Harbor Act of August 11, 1888, be " made to conform as nearly as practicable to the requirements of the " State Legislature of 1879, for new bridges over the Harlem River."

This recommendation was approved by the Secretary of War June 22, 1890, and the City of New York, owning or controlling the bridge at Third avenue, and the New York Central and Hudson River Railroad Company owning or controlling the bridge at Fourth avenue, were noti-

fied that the required modification should be made by January 1, 1892, as appears by the following correspondence, which was transmitted by the Mayor of New York to the President of the Department of Parks, as that department, by law, has charge of the Third avenue bridge.

The correspondence is as follows :

MAYOR'S OFFICE, NEW YORK,
July 17th, 1890.

HONORABLE ALBERT GALLUP,
President Park Department :

SIR—I transmit herewith by direction of the Mayor, for such attention as may be proper, the enclosed communication from G. L. Gillespie, Lieutenant-Colonel Engineers, U. S. A., accompanying notice of the acting Secretary of War in relation to alterations to be made to the bridge across the Harlem River at Third avenue.

Very respectfully,
(Signed) LEICESTER HOLMES,
Secretary.

(Enclosure.)

ENGINEER'S OFFICE,
Room 62, Army Bldg.
39 Whitehall St., N. Y.,
NEW YORK, July 8, 1890.

TO THE CITY OF NEW YORK,
Through the Mayor of the City of New York :

SIR—In compliance with the instructions of the Chief of Engineers, I have the honor to present to you the enclosed notice of the Secretary of War relative to alterations to be made to the bridge across the Harlem River, N. Y., at Third avenue, N. Y. City.

Very respectfully,
Your obedient servant,
(Sgd.) G. L. GILLESPIE,
Lt.-Col. of Engineers, U. S. A.

WAR DEPARTMENT.

WASHINGTON CITY, July 2, 1890.

TO THE CITY OF NEW YORK :

Take notice that whereas the Secretary of War has good reasons to believe that the bridge across the Harlem River at Third avenue, New York City, is an obstruction to the free navigation of the said Harlem River, which is one of the navigable waters of the United States, by reasons of insufficient height and insufficient width of spans ;

And whereas to the first day of January, 1892, is a reasonable time in which to

so alter the said bridge as to render navigation through or under it free, easy and unobstructed :

Now, therefore, in obedience to and by virtue of the IX. and X. sections of an Act of Congress of the United States entitled " An Act making appropriations for the construction, repair and preservation of certain public works on " rivers and harbors, and for other purposes," which took effect August 11th, 1888,

I, Lewis A. Grant, acting Secretary of War, do hereby notify the said City of New York to so alter the said bridge as to render navigation through or under it free, easy and unobstructed, and prescribe that said alterations shall be made and completed on or before the first day of January, 1892.

(Signed) L. A. GRANT,
Acting Secretary of War.

On the same day a similar notice was sent to the N. Y. C. & H. R. R. R. Co., but that company apparently has taken no action in reference thereto.

The Park Commissioners referred their notice in reference to the Third avenue bridge to its Engineer of Construction, whose report is as follows :

DEPARTMENT OF PUBLIC PARKS,
Office of Engineer of Construction,
Arsenal Building, Central Park.
NEW YORK, December 8th, 1890.

CHARLES DE F. BURNS, Esq.,
Secretary Dept. Public Parks :

SIR—I beg leave to acknowledge the receipt of a communication from his Honor the Mayor, enclosing communication from G. L. Gillespie, Lt.-Col. Engineers, U. S. A., with accompanying notice from the acting Secretary of War relative to alterations required to be made to the bridge across the Harlem River at Third avenue, New York City, which was referred to me to prepare plans with estimate of cost.

I have the honor to report that after due consideration of the alterations required by the aforesaid notice, and on examination of the present bridge and its surroundings, I find difficulties and complications of so serious a nature that I have deemed it my duty to submit a statement of the same for the consideration and further instructions of the Commissioners, previous to commencing the preparations of the estimate, &c., A map showing the location of the present bridge, with the lines, grades and elevations of the adjacent avenues and streets and railways, and also the buildings, has been prepared and is herewith submitted to show some of the difficulties encountered.

1st. The alterations prescribed by the Secretary of War not only require the raising of the bridge, but that the width of the draw spans shall be increased.

The length of the present draw spans, including the pivot pier, is $217\frac{2}{3}$ feet and the width of the spans in the clear is about 80 feet each, and it is assumed that the requirements of the notice are that the height of the draw in the clear and the length of the draw spans and centre pier shall be in conformity with the general provisions of Sec. 676, of Chap. 410, Laws of 1882 of the State of New York, regulating the construction of bridges over the Harlem River, &c., viz: Height in clear at draws *24 feet* above high water of spring tides as established by the U. S.

Engineers, and that the length of bridge, of draw spans and centre piers to be not less than *240 feet*.

This will render the present heavy iron bridge, draw and fixed spans *useless* and also cause the removal of the present piers supporting the ends of the draw spans and the construction of two new piers as well as an entire new bridge. It is also possible that the erection of a new bridge of greater length and weight on the present site will require a new pivot or centre pier.

The present centre pier upon which the draw span rests is formed of 12 cast-iron pipes 4 feet in diameter and filled with concrete. Some of these pipes or columns have been fractured or cracked vertically above low water mark, and have been secured with bands within the past two years. Their present height above the bed of the river is about 31 feet. Their condition below low water can only be determined by careful examination. The advisability of increasing their height at least 10 feet and of their capacity to support a longer and more weighty bridge requires careful study.

The shore abutments, from their appearance (there being no plans), it is believed will permit of being raised to the required height.

2d. THE APPROACHES. The height of the present draw span in the clear is about 13 feet above high water mark, but the increased length and weight of the same will require a greater depth of truss and the grade of the roadway will require to be raised about 14 feet.

This will affect the approaches: and at such an important crossing over which the great share of the heavy freight traffic passes, it is an absolute necessity that the grades should be kept at the minimum, and should in no case exceed one foot rise in thirty, or $3\frac{1}{3}$ feet in 100 feet.

To construct these approaches up and down the Third avenue as at present, with a grade of $3\frac{1}{3}$ feet in 100 feet, the approach on the southerly side would extend to the northerly curb line of One Hundred and Twenty-eighth street, and on the opposite side of the river to 100 feet northerly of One Hundred and Thirty-fourth street.

The approaches, so far as is practicable, should be of solid filling, and the construction of the same on the southerly side of sufficient width required for the traffic crossing the bridge would virtually deprive the Third Avenue Surface Railway Company of means of access to their large buildings erected for their plant for the cable road, storage of cars, &c., which occupies the entire block (except a small portion at the northeast corner of One Hundred and Twenty-ninth street) between Third and Lexington avenues and One Hundred and Twenty-ninth and One Hundred and Thirtieth streets, together with their tracks in the Third avenue northerly of One Hundred and Twenty-eighth street, and their tracks, switches, &c., in One Hundred and Twenty-ninth and One Hundred and Thirtieth streets connecting with their building. It would also require the removal of the structure and station of the Third Avenue Elevated Railway northerly of One Hundred and Twenty-eighth street, and the connecting elevated railway through One Hundred and Twenty-ninth street.

On the opposite side of the river the property most seriously affected would be the large foundry buildings on the northerly side of the avenue, extending from the river to One Hundred and Thirty-fourth street.

Besides the above-mentioned difficulties, the damages to private property must be considered.

3d. CHANGE IN THE LOCATION OF APPROACHES. A change in the line of approaches has been considered and is presented for consideration by which the interference with the railways and damages to the Third avenue property might be avoided, viz:

On the southerly side by the purchase of a strip of land 50 feet in width along the north line of One Hundred and Thirtieth street, between Third and Lexington avenues, and on the northeast side by occupying 20 feet of the southern boulevard and the purchase of a strip 30 feet in width adjoining, along its southerly line from Third to Lincoln avenues, making the entrance and exit for vehicles at Lexington and Lincoln avenues, and for pedestrians by flights of steps at Third avenue on each side of the bridge, and by an extension on the southerly side to One Hundred and Thirtieth street for the use of the street railways crossing the bridge from the Twenty-third and Twenty-fourth Wards.

4th. CHANGE OF LOCATION OF THE BRIDGE. If a change of the location of the bridge could be made without excessive damages for right of way for the bridge and its approaches, and upon such lines as would not materially inconvenience the traffic crossing the same, and not be an obstruction to navigation, in one respect it would be advantageous, as the present bridge might be retained for use until the new bridge was opened for traffic.

If changed, in order to use the old bridge during its construction, it could not be placed within 250 or 300 feet of the present bridge, leaving sufficient space for the working of the draws during construction.

If located easterly of the present bridge, it would be objectionable on account of its nearness to the bridge crossing at the Second avenue, as the length of the block between Second and Third avenues is but 610 feet, and when both draws were opened at one time it would be an obstruction to navigation.

In case the new bridge is to be placed on the site of the present bridge, a *substantial temporary bridge* must of necessity be erected for the accommodation of the immense traffic of freight and passengers crossing the river at this point.

The number of vehicles crossing the bridge by actual count for eight hours, from 8 A. M. until 4 P. M. on the 5th and 6th inst. being :

Vehicles of all descriptions.....	2,554
Horse cars.....	324
Total.....	2,878

As the structure must be placed at least 250 feet from the present bridge, right of way of the water front and for approaches to the streets or avenues must be leased or purchased.

6th. I would state that the time prescribed in the notice for the completion of the work (January 1st, 1892) is inadequate for the work, and that at least two years after the work is placed under contract will be required to complete the same.

Inasmuch as the bridge crossing the Harlem River at this point is now, and will no doubt continue to be in the future, *the main and most important connection* between the Island of New York and the Annexed District, together with the railways constructed and the large property interests, all of which will be affected by any alteration to the present bridge, I have (as before stated) deemed it my duty to place before your Honorable Board the above facts, in order that the alterations as to height and location of the bridge and its approaches may be determined so as best to serve the large interests involved, and provide adequate means of transit across the river not only for the present but for the future.

Respectfully,

(Signed)

M. A. KELLOGG,
Engineer of Construction.

An item in the River and Harbor Act of Congress, approved September 19, 1890, making appropriations for improving the Harlem River, reads as follows :

Improving Harlem River, New York : Continuing improvement, two hundred and fifty thousand dollars ; and the Secretary of War is directed to cause the low bridges now crossing said Harlem River to be replaced by other bridges at the expense of the owners thereof as soon as the necessary legislation, if any such legislation be necessary, shall have enabled the change in grade to the approaches of said bridges thus required to be made, the owners of said bridges being allowed a reasonable time in which to complete the work necessary for said approaches. Said bridges shall leave a clear space between the under sides thereof and the high water of spring tides, of twenty-four feet, and shall be provided with draw-spans and draws of the width and length to be determined by the Secretary of War, and shall in all respects comply with law and conform to the requirements of the Secretary of War: Provided, That the Secretary of War shall prescribe the times and regulations for the opening and operating of the draws in said bridges, but said draws shall not be opened except for vessels propelled by steam with or without vessels in tow. Nor shall they be required to be opened at any times other than between ten o'clock in the forenoon and five o'clock in the afternoon.

This Act of Congress supersedes the notices of the Secretary of War of July 2, 1890, consequently the grades of the approaches cannot be changed, nor can the Third and Fourth avenue bridges be rebuilt without further action by the Legislature of the State of New York, which established the present grades of these approaches to said bridges.

A bill was introduced into, and was passed by the Legislature of the State of New York in 1890, to raise the bridge at Fourth avenue and its approaches, but failed to receive the signature of the Governor, and consequently did not become a law. A similar bill was introduced into the Legislature of 1891, at the instance of city officials, to raise the Third Avenue Bridge and its approaches, but failed to pass. Should a similar bill be reintroduced at the coming session of the Legislature, the question ought to be raised whether it would not be wise to abandon the *Canalization Scheme* of so much of the Harlem River as runs between Eighth and Third avenues, as I have indicated.

Now, as the authority to solve these problems is exclusively within the control of the Congress of the United States, with the concurrence of the Legislature of the State of New York, should not the Legislature be asked to create a Commission, composed of the State Engineer and Surveyor and two others to meet a similar Commission of U. S. Engineers to be appointed by Congress or by the Secretary of War, who shall hold joint sessions, with power to send for persons and papers, administer oaths and take testimony, and to examine for themselves as to whether or not it is advisable to complete the Canal Scheme as heretofore proposed, or to fill

in that part of the Harlem River between Third and Eighth avenues as here suggested, and to report the testimony taken and their conclusions to Congress and the Legislature of the State of New York, for such action as may be necessary in the premises for the State of New York or the Government of the United States to undertake.

For elevation of bridges and grades of approaches see profiles on accompanying map.

THIRD AVENUE BRIDGE.

At Third avenue there is a double draw road bridge of iron. The height of its bottom chord is 13 feet 8 inches above mean high water. If it were to be raised to 24 feet to meet the requirements of the law of 1879, the approach on each side of the river would have to be about 16 feet above the present level of the streets, and would have to be extended on the Harlem side back to One Hundred and Twenty-eighth street, which would block off the traffic at One Hundred and Twenty-ninth and One Hundred and Thirtieth streets entirely, and on the Morrisania side there will be a 16 feet embankment at the Southern Boulevard in front of the Mott Iron Works, and 7 feet at One Hundred and Thirty-fourth street and Third avenue. It is estimated that it will cost the City of New York to build this bridge and pay damages for private property, upwards of \$2,500,000.

FOURTH AVENUE BRIDGE.

In 1840 the Legislature of the State of New York authorized the N. Y. & Harlem Railroad Company to construct and maintain a draw-bridge over the Harlem River at Fourth avenue, and to extend its railroad through Westchester County,

In 1872 the Legislature required the sinking of the grade of the railroad between Forty-fifth street and the Harlem River, and the construction of the tunnel, viaducts and depressed ways along Fourth avenue, which constituted what is commonly known as the "Fourth Avenue Improvement," the City of New York paying one-half of the expense thereof.

The bottom chord of the present draw-bridge across the Harlem River at Fourth avenue is 7 feet 2 inches above mean high water of spring tides. If it shall be elevated to 24 feet, as required by the Act of Congress of September 19, 1890, the grades of the railroad on Fourth avenue and on the other side of the river must be changed by authority of the Legislature of the State of New York so that the approaches will conform to the new elevation, which would be as follows, viz. :

Commencing at One Hundred and Twenty-fifth street the new grade would have:

To be raised 8 feet 9 inches at One Hundred and Twenty-eighth street, Harlem.

To be raised 11 feet..... at One Hundred and Twenty-ninth street, Harlem.

To be raised 12 feet 2 inches at One Hundred and Thirtieth street, Harlem.

To be raised 16 feet 9 inches at One Hundred and Thirty-fourth street, Harlem.

To be raised 16 feet 9 inches at One Hundred and Thirty-fifth street, Morrisania.

Leaving the present new station at One Hundred and Thirty-eighth street 12 feet below grade, reaching zero at One Hundred and Forty-fourth street, Morrisania.

Blocking off streets and damaging private property to the extent of millions of dollars, in addition to the cost of rebuilding the bridge and approaches, which will not be less than, say, \$3,000,000.

NOTE.—It is claimed, however, that if the N. Y. C. & H. R. R. R. Company should be required to rebuild this bridge and the approaches on both sides of the Harlem River, that the City of New York will be compelled to pay one-half of the cost thereof, as it had to do in the Fourth avenue improvement.

McCOMB'S DAM BRIDGE.

By Act of the Legislature of April 29, 1890, the cost of the McComb's Dam, double draw, road bridge, to be built of wood and iron at Seventh avenue and One Hundred and Fifty-fifth street, including cost of private property and land damages, was limited to \$1,250,000. It has since been ascertained, however, that \$750,000 additional will be required for land damages, private property and the right of way—consequently, without such additional appropriation being authorized, it is believed that this bridge, as designed to be built, 36 feet 7 inches above mean high water of spring tides, cannot be built for less than the sum of \$2,000,000.

NOTE—Now as it is ascertained that the new McComb's Dam Bridge and its approaches will cost \$2,000,000, would it not be advisable to dispense with it entirely, and instead, build a section of the "Covered Waterway" at Seventh avenue and One Hundred and Fifty-fifth street this year, and fill in so much of the Harlem River as will be necessary for the extension of Seventh avenue, on grade, across into Morrisania to connect with Central or Jerome avenue, at a probable cost not exceeding \$200,000. The Viaduct can be extended to the avenue instead of a bridge.

RECAPITULATION OF CITY'S PROBABLE LIABILITIES.

For Third Avenue Bridge and approaches.....	\$2,500,000
For Fourth Avenue Bridge and approaches ($\frac{1}{2}$).....	1,500,000
For McComb's Dam Bridge and approaches.....	2,000,000
For improvements proposed by Dock Board.....	2,500,000
A grand total of.....	<u>\$8,500,000</u>

THE ANNEXED DISTRICT—AREA.

The 23d and 24th Wards were annexed to the City of New York January 1, 1875, pursuant to Chapter 613 of the Laws of 1873.

These Wards have an area of.....	12,317 acres.
Manhattan Island has an area of.....	12,576 acres.

POPULATION.

The population of the 23d and 24th Wards at the time of annexation was....	36,194
In 1880, five years later, it had increased to	41,626
In 1890, ten years later, it had increased to	80,000
Now it is estimated that the population is fully	100,000

ASSESSED VALUATION.

In 1880 the assessed valuation was.....	\$22,901,985
In 1890 the assessed valuation was.....	44,423,634
In 1891 the assessed valuation was.....	50,670,741

Should the Harlem River be filled in as herein proposed, the assessed valuation of these two Wards, in the next five years, will be considerably in excess of.....	\$100,000,000
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PARKS, STREETS AND SEWERS.

The Parks and Parkways in and adjacent to these Wards contain 3,835 acres, and have cost the City of New York, about, if not fully.....	\$9,500,000
The cost of other public improvements, such as the 250 miles of streets, and 32 miles of sewers.....	5,000,000
Total expenditure by the City of New York.....	\$14,500,000

RAILWAYS.

There are seven lines of steam railroads now in operation in the two Wards, and several others projected.

There are 38 passenger stations. Over 300 passenger trains passing each way daily. Over 2,000 freight cars are despatched daily.

There are six lines of horse-car railroads now in operation, and several others projected. Last year they carried somewhat over 4,000,000 passengers, and the Suburban Elevated Railroad carried about 3,000,000 passengers.

There are three elevated railroads, viz: The Second, Third and Sixth avenue, and three horse-car lines and one cable road terminating on the southerly or west-

erly side of the Harlem River near bridges, which connect with the Twenty-third and Twenty-fourth Wards.

The N. Y. C. & H. R. R. R., the Harlem, and the N. Y. N. H. & H. Railroads cross the Harlem River at Fourth avenue at One Hundred and Thirty-fourth street.

The New York & Northern Railroad crosses the Harlem River at Eighth avenue above One Hundred and Fifty-fifth street.

CONCLUSION.

If it should be decided to fill in the Harlem River between Third and Eighth avenues and make solid land there, save a 60-foot covered waterway, so as to allow the avenues and streets of Harlem to be extended into Morrisania, as indicated, the expenditure of \$8,500,000 for bridges and dock improvements would not only be avoided, but the reclamation as shown by the computation noted on my map is that the area limited by the high water line, shaded red, contains 193.40 acres, and that the area between the high water line and the land side of River street contains 41.70 acres, a total of 235 acres, which at sixteen city lots per acre (25x100) would make a grand total of 3,762 city lots, worth at least \$10,000,000 for taxable purposes.

Now, instead of paying damages to the owners of lands on each side of the Harlem River between the points named, I would suggest that the owners may fill up the land under water out to the middle of the river in front of their grants, and make it dry land and build the proposed covered waterway, and that they shall, on fair terms, be given a good title to the land thus reclaimed.

By filling in the Harlem River between Third and Eighth avenues, and extending Undercliff avenue from One Hundred and Fifty-fifth street northerly until it intersects the proposed River street at about One Hundred and Sixty-fifth street, not only will the expenditure of \$8,500,000 by the City be saved, but fully \$10,000,000 of taxable property will be added to the assessment rolls, besides increasing the values of other property in Harlem, and in the Twenty-third and Twenty-fourth Wards, each to an extent of over \$50,000,000, and at the same time secure the blessings and gratitude of the present and of future generations.

I have the honor to be,

Gentlemen,

Yours most respectfully,

SIMON STEVENS.

APPENDIX.

NOTE—MARCH 8TH, 1892.

As I had not the opportunity to make a verbal statement to the Commissioners of the Sinking Fund March 2, when my monograph was presented, I give here a concise summary of each of the six Harlem River Bridge Bills that have been presented to the Legislature during the present session and the action of the Assembly and Senate thereon. And for information to those whom it may concern I add copies of a few, out of a great number of newspaper editorials, correspondence and news items, that have reference to the Harlem River Improvements.

WILLIS AVENUE BRIDGE.

ASSEMBLY BILL No. 736. INTRODUCED BY MR. J. L. WELLS, FEBRUARY 16, 1892.

AN ACT

To provide for the construction of a draw-bridge over the Harlem River between the northerly end of First avenue in the Twelfth Ward and the southerly end of Willis avenue in the Twenty-third Ward of the City of New York.

SUMMARY.

It provides that the Commissioners of the Department of Parks may construct a drawbridge across the Harlem River from Willis avenue in the Twenty-third Ward to First avenue in the Twelfth Ward of the City of New York. The plans and specifications for the bridge to be approved by the Board of Estimate and Apportionment. The grades of approaches on the northerly side of the Harlem River must have the approval of the Commissioner of Street Improvements of the Twenty-third and Twenty-fourth Wards.

The expense of constructing the bridge and approaches not to exceed \$1,250,000, exclusive of land damages.

Referred to the Committee on Affairs of Cities.

THIRD AVENUE BRIDGE.

ASSEMBLY BILL No. 18. INTRODUCED BY MR. WEBSTER, JANUARY 12, 1892.

ACT

To provide for the construction of a drawbridge over the Harlem River in the City of New York, and for the removal of the present bridge at Third avenue in said City.

SUMMARY.

Provides that the Commissioner of Public Works shall construct a new bridge across the Harlem River, at Third avenue, as near as possible in the position occu-

pied by the present bridge, which shall be removed so far as may be necessary to allow such construction. The Comptroller is directed to issue bonds to pay cost of construction, and also for payment of awards for damages, when authorized and directed so to do by the Board of Estimate and Apportionment. The interest on such bonds not to exceed three per cent., redeemable in not less than 20 years, the cost of construction not to exceed \$1,500,000, exclusive of damages.

This bill passed the Assembly February 9, 1892, and was sent to the Senate for concurrence.

FOURTH AVENUE BRIDGE.

SENATE BILL NO. 196. INTRODUCED BY MR. HAGAN, JANUARY 27, 1892.

AN ACT

To authorize and require an increased elevation of the bridge of the New York and Harlem Railroad Company in the City of New York, over the Harlem River above high water of spring tides, and to provide for all changes in any avenues, streets and railroads that may be necessary by reason of such increased elevation of said bridge and for other purposes.

SUMMARY.

It provides for raising the Fourth Avenue Railroad Bridge to a height of 24 feet above the high water of spring tides; provides that the draw of the new bridge shall only be open to steam vessels, and only between the hours of 10 A. M. and 5 P. M.; authorizes the railroad company to raise its grade on each side of the bridge.

It releases the railroad company from its obligation to maintain the present bridges over the New York and Harlem Railroad, which will be interfered with by the change of grade, but requires it to make and maintain in lieu thereof bridges at One Hundred and Twenty-sixth, One Hundred and Twenty-seventh, One Hundred and Twenty-eighth and One Hundred and Twenty-ninth streets, and at roadways at One Hundred and Thirty-second and One hundred and Thirty-third streets, and at the exterior streets along the southerly side of the Harlem River.

Authorizes the company to build a temporary bridge during the construction of the new bridge, and to occupy the streets necessary for the approaches to said temporary bridge.

Referred to the Committee on Commerce and Navigation.

MCCOMB'S DAM BRIDGE.

ASSEMBLY BILL NO. 53. INTRODUCED BY MR. WEBSTER JANUARY 13, 1892.

ACT

To amend Chapter 207, Laws of 1890, entitled "An Act to provide for the construction of a bridge over the Harlem River in the City of New York."

SUMMARY.

Provides that the awards for property taken shall not be paid out of the \$1,250,000 appropriated for the bridge.

This bill passed the Assembly January 21, 1892; also passed the Senate and became a law by constitutional provision, January, 1892.

**BRIDGE AT ONE HUNDRED AND FORTY-FIFTH STREET,
HARLEM, TO ONE HUNDRED AND FORTY-NINTH
STREET, MORRISANIA.**

ASSEMBLY BILL No. 734. INTRODUCED BY MR. J. L. WELLS FEBRUARY 16, 1892.

AN ACT

To provide for the construction of a drawbridge over the Harlem River connecting the easterly end of One Hundred and Forty-fifth street in the Twelfth Ward with the westerly end of One Hundred and Forty-ninth street in the Twenty-third Ward of the City of New York.

[The provisions of this bill are precisely similar in terms to those relating to the bridge from Willis avenue.]

The expense of constructing the bridge shall not exceed \$1,000,000; expense for land damage not included.

Referred to the Committee on Affairs of Cities.

KINGSBRIDGE.

ASSEMBLY BILL No. 17. INTRODUCED BY MR. WEBSTER JANUARY 12, 1892.

AN ACT

To provide for the construction of a bridge over the Harlem Ship Canal in the City of New York.

SUMMARY.

Authorizes the Commissioner of Public Works to construct of stone, iron and steel, a suitable bridge across the Harlem Ship Canal, on the line of the Kingsbridge road. Cost not to exceed \$400,000, not including awards for damages.

The plans and specifications for the bridge and proposed changes in the grade line of the streets and avenues shall first be approved by the Board of Estimate and Apportionment, and said bridge shall be completed within three years after approval by Board of Estimate and Apportionment, and the Comptroller, when directed by said Board, shall issue bonds bearing not more than 4 per cent. interest, redeemable in not less than twenty years from date, for defraying expenses of construction, etc.

[There are no provisions for draws as are in all other bridge bills.]

The bill passed the Assembly February 16, 1892, and was sent to the Senate for concurrence.

On March 1st, 1892, there was a joint session of the Senate and Assembly Committees to give interested parties a hearing on Mr. Hagan's Fourth Avenue Bridge Bill. The NEW YORK TIMES, of March 2, contains the following letter from its Albany correspondent:

CHAUNCEY TELLS A STORY.

MR. DEPEW BEFORE A JOINT LEGISLATIVE COMMITTEE.

THE PRESIDENT OF THE NEW YORK CENTRAL ARGUES IN FAVOR OF THE BILL TO RAISE THE RAILROAD BRIDGE ACROSS THE HARLEM.

ALBANY, March 1.—Chauncey M. Depew was paid distinguished honors by the Legislature to-day. He arrived at the Capitol about 12:30 o'clock, having run up from New York in order to appear before the joint committees of the Senate and

the House this afternoon on the Hagan bill to permit the New York Central Railway to raise its bridge over the Harlem in order to conform with the requirements of the Federal statutes and the regulations of the War Department. With Mr. Depew were Mr. H. Walter Webb, third vice-president of the New York Central Road; Frank Loomis, the company's counsel, and John M. Bowers.

At this afternoon's hearing Mr. Depew, John M. Bowers, attorney for the New York Central; Assemblyman Wells (Rep., N. Y.), and George H. P. McVay, editor of the "Up-Town Express," appeared for the bill. There were also present Mr. H. Walter Webb and Mr. Loomis. Against the bill appeared Charles W. Dayton, representing the Up-town Property Owners' Association, and Assemblyman George P. Webster (Dem., N. Y.). One of the curious features of the hearing was the position taken by this same Col. Webster as a defender of the rights of the property owners of the annexed district. It will be remembered that no longer ago than last week he was one of the strongest advocates of the "Huckleberry Road" bill, which proposes to gridiron the Twenty-third and Twenty-fourth Wards, in spite of the protest of and without regard to the rights of the taxpayers of that section. The Senate Chamber was crowded. Mr. Depew led off in the discussion. He spoke substantially as follows:

MR. CHAIRMAN AND GENTLEMEN—The railroad company is usually before the Legislature either to advocate or to oppose a measure. It either wants something or it wants to prevent something from being done. But we are here to-day in an entirely novel position. We are here rather to take the advice of the Legislature. It can hardly be said that it is something that we care to oppose or something we wish to advocate. It is a position which is forced upon us by an enterprise entirely outside of the operations of the railway company or of the usual improvements in the city through which we run. We find ourselves in this position: Twenty years ago we settled with the City of New York, at a large expense to ourselves and a considerable expense to the city, precisely what our relations should be in entering the City of New York. We supposed that it was settled for all time. But a portion of the people living along the Harlem River desired to have a ship canal, and applied to the General Government for that purpose. The General Government adopted the suggestion and set their engineers to work to build the ship canal.

In the construction of that canal the Government has issued a peremptory order that all bridges over the Harlem River shall be raised twenty-four feet above high water. That applies to city bridges and to the various railway bridges. We are put in this position: If we obey the Government, as we must, and put our bridge up twenty-four feet above high water, then we have to get the privilege from the State to raise our grade on the land on either side to get on the bridge. That is the question. If there was no Harlem Canal being constructed, this matter would neither trouble the Legislature nor the citizens of Harlem nor the Harlem Railroad.

After giving a brief history of the building of the Harlem Railroad and the way in which it has met the demands of New York's growth, Mr. Depew continued:

Now comes along this new factor, the Harlem River, and they say now, "You must go up in the air again," so that the Harlem Railroad is put in the position of a boy on the end of a teeter board, which I used to see when I was in the country, only the boy on the end of the teeter board in the country never was subjected to any further peril than falling off the board. But we have to pay when we go down, and then pay again when we go up, deriving no other benefit than the pleasure of going down in the first place and then going up again afterward, for we will do no more traffic underground than we did on the surface, and we will do no more traffic up in the air than we do on the ground. We say, "Very well, we are law-abiding citizens." To construct this bridge and elevate our tracks on both sides and do all this work will cost us in the neighborhood of \$3,000,000. As law-abiding citizens we are willing to spend this \$3,000,000 for the general good, and we want to do it in a way which will do the least possible damage to our neighbors.

As you will see from the explanation which I have given, the carrying of the railway up at an expense of \$3,000,000 to it, whatever damage there may be to the property by carrying the railway up, is the assessment which we all pay, for what?

I am not here for the purpose of discussing the Harlem Canal, although I have very clear notions on the subject. I think when every city in the world which has a river running through it is building solid bridges at every avenue and compelling by legislation every craft which wants to navigate the river to hinge its masts and

smoke pipes and go under; when every city in the world which is divided by a river is using every resource which engineering skill can devise to tie itself together—I take for example the City of New York, which has water on three sides—to induce the General Government to cut itself in two in order to have water on all sides, is about the most monstrous piece of folly of which I know. However, the Legislature has nothing to do with that. We are here to meet the case as it is presented by these conditions.

Now, as soon as the Government made this demand upon us to raise our bridge, we directed the engineers of the Harlem Railway Company to prepare a plan of a bridge which would meet the requirements of the Government, which they have done. Then we said to them, “Now we want you to prepare a plan by which we can get onto that bridge on a grade which will permit us to haul the heavy trains that carry the people of the State of New York and the people of New England and the people of the West into the city, and which constitute at least a quarter of the travel going over that line; at least a quarter of the travel which makes the inland traffic which makes the importance of the City of New York.”

Here we are met at this point by this difficulty: As we rise out of the cut in which we now are, and where we were placed by the Legislature of 1872, we are compelled to take away the bridges which now cross our viaduct. You gentlemen who do not live in New York may not know exactly how we are situated there. Through Harlem we run in a deep cut, and the streets are carried over by bridges. In order to get onto this bridge across the Harlem River, which the Government says we must raise twenty-four feet, we have to come out of this cut, and coming out of this cut we have to take away the present road bridges at One Hundred and Twenty-sixth, One Hundred and Twenty-seventh, One Hundred and Twenty-eighth and One Hundred and Twenty-ninth streets and substitute for the road bridges foot bridges passing up and crossing over. But there is this compensation that we have, that One Hundred and Thirtieth, One Hundred and Thirty-first, One Hundred and Thirty-second, and One Hundred and Thirty-third streets, and the river avenue which is to be, but is not yet, constructed, by our elevating the tracks, can pass under. Now, they are absolutely barred from going across, because they are not high enough to go over, and are not low enough to go under. So that, on the score of the number of streets that are opened and closed, we probably open as many as we close, only my friends from Harlem will claim, and rightly, that at present the streets that we close for the bridges across are very much more important in the value of the property upon them than the streets that we open. But we think the streets that we open, when opened, will probably in a few years be as valuable as those which we close.

When we cross the river on the other side in the annexed district, then our bridge is of great advantage to that district. As you will remember, as you come down to the Harlem River, all the great avenues which carry the annexed district—that is, Morrisania and Mott Haven—across the Madison Avenue Bridge into Harlem cross our tracks at grade at Mott Haven Station. The number of trains are becoming so frequent there—and they will grow more and more frequent every year—that it is almost impossible now to have the gates opened long enough for any traffic to go across. I look to a time when the increasing population of the suburbs of New York, out on the New Haven Road in that direction, out on the Harlem Road north, out on the Spuyten Duyvil and Hudson River Road this way, with the increasing population living in the country or in the annexed district within the corporate limits of the City of New York, and doing business in New York, will be so great that trains will be running there for three hours in the morning and three hours in the afternoon at not less than three-minute headway. That will make it utterly impossible for anybody to cross those streets and will cut off access entirely.

Coming off of the bridge at this high grade, and coming down so far beyond Mott avenue and One Hundred and Thirty-eighth street are carried under, so that free circulation is given to the annexed district, and undoubtedly that is one of the greatest improvements so far as the City of New York is concerned as a whole that could possibly be made. So far as the City of New York as a whole is concerned, it undoubtedly confers benefits which are greater than any damages which possibly could be ciphered out in that part of Harlem where the road bridges are substituted for foot bridges.

There has been a claim made that we should go under. The City of New York

is carrying all its bridges over in the air twenty-four feet above high water, and is doing it at an expense of from \$15,000,000 to \$20,000,000. The New York City and Northern Road carries its bridge over above the water, the Suburban Rapid Transit carries its bridge over above the water. The Second Avenue has its charter, and is about to build a bridge over above the water, and it seems rather singular that where there are some thirteen streets and avenues to be carried across on bridges and three railroads to be carried across on bridges, the demand should be made that the Harlem Railroad should go under, because we think we are quite as good citizens and entitled to quite as good treatment as our neighbors. All we want is to be treated precisely the same, or as a story that I once heard—is it allowable to tell a story?

SENATOR MCCARREN: Certainly; tell all the stories you like.

MR. DEPEW: A friend of mine in his youth was a wild boy and took passage before the mast on a whaler. He said the captain was an exceedingly crusty man, and the mate an exceedingly intelligent one. One day the mate thought that he spied a whale, and he shouted, "There she blows." The captain said, "I see no blows." He shouted again in a little while, "There she blows and there she spouts." The captain said, "I see no blows and I see no spout." In a little while the mate cried again, "There she blows and there she spouts." The captain said, "Well, Mr. Jones, if you think there she blows and there she spouts again, lower a boat and go for her." And the mate did, and came back with a whale which tried out eighty barrels of oil, which in those days was to be divided among the captain and the crew, ratably. The captain said, "Mr. Jones, you have done well. I feel that when we get back to New Bedford you will be promoted; you will be rewarded. Certainly you will have a series of complimentary resolutions passed." Mr. Jones said, "Captain, I don't want no promotion, and I don't want no reward, and I don't want no resolutions; but all I do want while I am on this ship is common civility, and that of the—common kind." All the Harlem Railroad asks in this legislation is that it shall have the commonest kind of treatment that is awarded to the humblest of the people who are similarly situated.

In regard to the tunnel, there are engineering difficulties which are practically insuperable. I do not think in these days anybody wants to ride in a tunnel if they can go in the open air. No American wants to go underground until he is dead, and he wants to postpone that happy event as long as possible. You must remember that while this improvement affects only four blocks in Harlem—and I am not saying anything about those four blocks, they have rights which certainly we do not want to trench upon—that while it affects injuriously only four blocks in Harlem, it affects in another sense 10,000 working men who go daily to their work in the City of New York.

It affects 25,000,000 or 30,000,000 people who cross this bridge visiting the City of New York. Their convenience and their comfort have a good deal to do with this question. With the Harlem Canal and our bridge as it is now, and with the navigation of the Harlem River as it is now, it is safe to say that every one of our work trains that come in in the morning is detained twenty minutes. From every man going to work, whether he is a clerk, whether he is a laborer, or whether he is a mechanic, there is twenty minutes taken out of his time. That twenty minutes is taken out of his pay; that twenty minutes sometimes affects his holding his place, for many of them have lost places through this delay at the Harlem draw-bridge. It does not affect the railroad in its earnings, because these people have to ride upon the railroad, but it does affect these people, most of whom live and vote in the City of New York in the annexed district. A tunnel would compel the taking down of our viaduct, because a railroad cannot run up and down hill. It has to run on a grade, and that grade has to be such that these heavy modern cars can be drawn over it. To build a tunnel we must commence to go down at Ninety-sixth street and take down our viaduct. All the streets from Ninety-sixth to One Hundred and Twelfth street pass under the viaduct free. In order to have a tunnel we would have to take down the viaduct and close every one of those streets, so that, while it would leave the four streets in upper Harlem as they are now, it would close twelve or more streets in lower Harlem, inflicting infinitely more damage than the possible damage that could come in the passage of this bill.

With the Government demanding that there shall be 20 feet of water at low tide; with the necessity of lowering our present grade 10 feet to get to the water at high tide; with the necessity of having at least 6 feet of mud above the arch; with

the necessity of having at least six feet of arch to support this great weight of river craft and mud, and 15 to 16 feet of headway below, we are about 60 feet below our present grade when we are in the middle of the Harlem River, and that would make us 60 below at One Hundred and Twenty-fifth street, which is our present station at Harlem. We would have to abandon that station. We could not come to the surface until we passed Melrose, which would compel us to abandon every station in the annexed district on the Harlem Road and on the Spuyten Duyvil Road, on account of our track being on the level of the river all the way along. We would have to make a water-tight arch, carrying us under Cromwell Creek and bringing us out somewhere in the neighborhood of Broadway, so that there would not be, practically, a single station in the annexed district. As far as the Harlem Railroad, the Spuyten Duyvil and Hudson River Railroad, and the New Haven Railroad are concerned, the annexed district would be absolutely cut off from the City of New York by a tunnel. I think it would be a calamity happening to the annexed district which would be equivalent to the confiscation of the district.

In these days when we are talking about rapid transit and about tying the City of New York together, when we are talking about making the metropolis what it ought to be, not only the first city in the country in all that constitutes a great city, but the first city in the rapid means of communication between its different parts—rapid and cheap—to talk of going back to methods by which that communication shall be prevented, is like asking that Harlem shall be turned back to the condition when it was a happy hunting ground at the time when Peter Stuyvesant ruled over the City of New York. That is precisely our position. This bill has been prepared by the engineers of the Harlem Railroad Company, while the city engineers commit themselves to nothing, as I understand it; yet they approve of it as to form and as to expediency. The Government is bound to build this canal; the Government has ordered the bridges up twenty-four feet; the Government has said that the State now must put the railroad up there. The Government, of course, cannot compel the State to put the railroad there, but the Government can abandon the canal. If the State refuses to permit the rest of the country to reach the City of New York across the Harlem River, so far as the Harlem Railroad is concerned, whatever you direct it to do it will cheerfully do, no matter what it is. Whatever you direct it to do is a burden upon the railroad company and no benefit to it whatever. The benefits are to the Harlem Canal and to the people of the annexed district who will, by this improvement as suggested by us, have an additional valuation given to their property, in affording free circulation to the streets that are closed by now being on the grade, and will have additional benefit given to it by having the detention at the Harlem draw taken away, so that that their people can go backward and forward on time.

After Mr. Depew came Mr. Dayton. He said that the taxpayers and property owners of the district affected would be damaged to the extent of many millions of dollars by the proposed change. He said that a tunnel would injure to a less extent the property in the neighborhood, and thought that scheme should be adopted by the road.

Mr. Webster started off with the unique statement (from him) that he didn't wish to disparage corporations, for they were undoubtedly necessary evils, but he thought that when the public was dealing with them it would do well to have the exact terms of the contract on paper. The bill under discussion, he thought, was not sufficiently specific. For instance, the city authorities were given no voice in the building of the bridge. The bridge, if built, would close the streets from One Hundred and Twenty-sixth to One Hundred and Thirty-fifth, and would throw the entire traffic of the district into One Hundred and Twenty-fifth street, which was already overtaxed.

Mr. McVay said that, as the editor of a paper, he was well qualified to know what the people of the district really wanted. He thought that they were almost unanimously in favor of a bridge, since it would very greatly facilitate transit between the district above the Harlem and the rest of the city.

Assemblyman Wells (Rep., New York) called attention to Col. Webster's sudden change of front, and then spoke at some length in favor of the bill. Mr. Powers closed the discussion by pointing out the impossibility of the tunnel scheme, both because it would cost very much more than the bridge and because the average American objected to riding underground if it could possibly be avoided. The Central Road, he said, was ready and willing to do everything that was fair to com-

pensate property owners for damages done them, and he proposed that the hearing be adjourned in order that the property owners and the road might come to some satisfactory arrangement. The hearing was, therefore, put over until next week, Wednesday, at 3 o'clock.

EDITORIAL FROM THE "EVENING SUN" OF MARCH 2, 1892.

THE HARLEM SHIP CANAL.

The real ordinary everyday public opinion of New York City should be aroused about the injuries likely to be done to the city by making a second Suez Canal out of the bed of the Harlem River. Up to the present the agitation in favor of a ship canal twenty feet deep has been carried on for the most part by real estate speculators. Primarily these speculators are not intent on building up the Annexed District as a whole, but only on booming the strip of property which they control on either side of the proposed canal.

That there should be a canal connecting the East and North Rivers has become a hoary and time-honored fetich. But it is evident, even to the most careless observer, that the dream of great argosies passing through the Sound, through Hell Gate to the North River, and so to Albany, to get laden with furs from the Far West, was rudely shattered with the invention of modern railway transportation. Who will now prophesy that the "Teutonic" or the "City of New York" will one day sail proudly up the Harlem sewer to reach her dock on the North River?

Every city long enough established in the world has reached a point when the rights of the citizens as a body must overrule the private greed of a few of their number. Much of London's growth is attributable to the fact that free navigation stops at London Bridge, though the Thames is deep enough and wide enough to carry ships for miles above that point. Where would Paris be to-day in the rank of the world's great cities if it were not for the convenience of access to it by the fixed bridges over the Seine? Belfast, the most prospering and Americanlike city in Great Britain, dates her leaps and bounds of growth from the day she took the Blackstaff, her Harlem River, straightened its bed, and made it simply the main sewer of a noble avenue.

The delays and inconveniences caused by the Harlem drawbridges are every day driving thousands of residents to Long Island and New Jersey. It is monstrous that the chief arteries of land communication should be plugged while a lugger laden with brick wallops her way past open drawbridges. Why not make such vessels have folding masts rather than stop vital traffic for their picayune convenience?

Of course the senseless clamor of cheap demagogues is always urged against such reasonable propositions as reducing the Harlem Canal to its useful limit, or filling it up altogether, because it flatters them to imagine that they are fighting great corporations in the interests of the people. This conduct is on a par with that of the ideal "Hayseed," who is afraid to put his money in a bank, yet gives it willingly to the first bunco steerer he meets. The real question at issue is, what will most benefit the citizens of New York as a body? This question has nothing to do with individual injuries or benefits to any corporation or group of speculators.

EDITORIAL FROM THE N. Y. SUN OF MARCH 3, 1892.

THE FILLING IN OF THE HARLEM.

A modified plan for filling in a large part of the Harlem River was brought before the Commissioners of the Sinking Fund yesterday. It would doubtless affect very materially certain real estate interests which are not specified and which we have no means of identifying, but it has decided merits and it should receive the most careful consideration.

Any intelligent plan that in part or in whole will do away with the Harlem River and give relief to the city on its northern boundary deserves earnest attention. The scheme presented yesterday is most instructive in the light that it sheds upon the true nature of the alleged Harlem ship canal and the other Harlem interests of a purely private nature, in behalf of which the growth of the whole City of New York is throttled and arrested.

NORTH OR HUDSON RIVER



MAP OF THE
HARLEM RIVER AND SPUYTEN DUYNIL CREEK
FROM WARD'S ISLAND TO THE HUDSON RIVER

PROJECT FOR A COVERED WATER-WAY 60 FEET WIDE, TO BE BUILT ON THE WESTERLY LINE OF THE
HARLEM RIVER FROM THE EASTERLY SIDE OF THIRD AVENUE TO 165TH STREET, NEW YORK CITY,
AND FILLING IN BETWEEN THE POINTS NAMED, SO THAT THE AVENUES AND STREETS OF HARLEM
MAY BE EXTENDED INTO MORRISANIA.

WAR DEPARTMENT MAP OF THE PIERHEAD AND BULKHEAD LINES OF
BOTH SHORES OF THE HARLEM RIVER & SPUYTEN DUYNIL CREEK, NEW YORK CITY

and approved by the SECRETARY OF WAR October 1st 1890.

FROM PLANS SUGGESTED BY SIMON STEVENS AND C. THADDEUS STEVENS 61 BROADWAY, NEW YORK.

THE
SOUND

BRIDGES ACROSS THE HARLEM RIVER

Name and location of bridge	Width of bridge feet below	Height of main chambers above mean high water	Remarks
Second Avenue	102.7	21.5	timber trestle, railroad bridge, iron
Third Avenue	112.0	13.3	" " " " " " " "
Fourth Avenue	65.0	7.2	" " " " " " " "
Madison Avenue	112.0	21.0	" " " " " " " "
5th Avenue	100.0	10.7	" " " " " " " "
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PROJECT

The Proposed Waterway is shown in Blue Lines
The Proposed Filling in is shown in Red Lines

HARBOR LINES

The Pierhead Line as shown by the Secretary of War is shown by a full red line
The Bulkhead Line as shown by the Secretary of War is shown by a dashed red line
Where the Pier and Bulkhead Lines coincide a full red line is shown

TIDES

Average time of High Water after Moon's Transit
Average Rise of Tides above the plane of mean Low Water

NOTE

"Comparing the Tides of the Harlem River at Pierhead Bridge with those of the Hudson River at the mouth of Spuyten Duyvil Creek it is found
1. That the level of mean high water in the Harlem is 0.500 foot lower than it is in the Hudson
2. That the mean rise and fall of the tide in the Harlem is 2.12 feet less than it is in the Hudson
3. That the mean duration of the rise of tides in the Harlem is 5 minutes shorter, the mean duration of the fall 26 minutes longer, and the mean duration of slack water 29 minutes longer than in the Hudson
4. The water level of the Harlem at Pierhead Bridge is 0.262 of a foot lower than at Pierhead Bridge
5. High Water occurs 1 hour and 14 minutes earlier in the Harlem than in the Hudson
From these facts it follows that while the Harlem is at different times of day than the Hudson, the perpendicular of day with its bearing to the Hudson, and the mean will go that way on that of a unit for the free passage of the tide, the spring into the Harlem will be the same as the spring into the Hudson
Annual Report of the Chief of Engineers, U.S.A. 1892

COMPUTATIONS

The Area limited by the High Water Lines, shaded pink, contains 174,411,000 sq. ft.
The Area between the High Water Lines and the Bulkhead Line, shaded blue, contains 1,741,000 sq. ft.
The Area between the Bulkhead Line and the Pierhead Line, shaded green, contains 3,702,000 sq. ft.

SCALE 1000 FEET - ONE INCH

0 1000 2000 3000 4000 5000 Feet

EVERY
CLASSICS

ARMY
OFFICE

